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**Datasheet for the decision
of 15 March 2021**

Case Number: T 2154/16 - 3.5.02

Application Number: 03705602.5

Publication Number: 1483817

IPC: H02J7/02

Language of the proceedings: EN

Title of invention:

Device for a battery charger

Patent Proprietor:

CTEK Sweden AB

Opponent:

Fronius International GmbH

Relevant legal provisions:

EPC Art. 123(2), 54, 56

Keyword:

Amendments - allowable (yes)
Novelty - main request (yes)
Inventive step - main request (yes)



Beschwerdekammern

Boards of Appeal

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Case Number: T 2154/16 - 3.5.02

D E C I S I O N
of Technical Board of Appeal 3.5.02
of 15 March 2021

Appellant: Fronius International GmbH
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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted on
22 July 2016 concerning maintenance of the
European Patent No. 1483817 in amended form.

Composition of the Board:

Chairman R. Lord
Members: H. Bronold
J. Hoppe

Summary of Facts and Submissions

- I. The appeal of the opponent lies from the interlocutory decision of the opposition division concerning the maintenance of European patent No. 1 483 817 in amended form according to the auxiliary request pending during the oral proceedings before the opposition division.
- II. With their grounds of appeal, the appellant (opponent) requested, that the decision under appeal be set aside and that the patent be revoked in its entirety.
- III. With their reply to the grounds of appeal, the respondent (patent proprietor) requested, that the appeal be declared inadmissible, or, if that was not possible, that the patent be maintained as amended during the opposition oral proceedings, or on the basis of the claims of their auxiliary request filed with the reply to the appeal. Further, the respondent requested, that documents E2 to E8 not be admitted into the appeal proceedings.
- IV. In a communication under Article 15(1) RPBA 2020 the board informed the parties of its preliminary opinion that the appeal was admissible and that documents E2 to E8 seemed to form part of the proceedings. The board also tended to the conclusions that claim 1 according to the main request did not contravene Article 123(2) EPC and that the only difference of the subject-matter of claim 1 identified by the appellant over the disclosure of document E1 was trivial.

- V. Oral proceedings before the board were held on 15 March 2021 as a videoconference, with the consent of both parties. During the oral proceedings the respondent withdrew their requests regarding the admissibility of the appeal and the admittance of documents E2 to E8.

The final requests were as follows:

The appellant (opponent) requested that the decision under appeal be set aside and that the European patent be revoked.

The respondent (patent proprietor) requested that the appeal be dismissed,
or as an auxiliary measure
that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of the auxiliary request filed with the reply to the appeal.

- VI. The following documents cited in the contested decision are of particular relevance for this appeal:

E1 : US 5,644,211
E2 : US 4,583,035
E3 : US 2002/0070708 A1
E4 : CN 2446710 Y
E5 : DE 2 009 695 A1
E6 : US 4,682,262
E7 : DE 2 242 050
E8 : EP 1 299 933 B1

Document E3 does not constitute prior art in the sense of Article 54 EPC but is a member of the same patent family as document E4. It was accepted by both parties as an English translation of document E4.

VII. Claim 1 according to the main request reads as follows:

"Device for a battery charger, comprising

- a first connection means (14, 16) connected to the output lines of the charger, and
- a second connection means (16, 24) for connection to the terminals of a battery to be charged, the second connection means comprising
 - first detection means configured to detect a voltage over the output lines of the charger, **characterized in that** it comprises
 - second voltage detection means (80, 82, 84, 86, 88) configured to detect a positive voltage level over the terminals of the connected battery,
 - a switch means (60) for connecting at least one of the output lines of the charger to the terminals of the battery, and
 - a switch activating means (70) operatively connected to said first and second voltage detection means and designed and configured such that it is capable of activating the switch means only when both a voltage is detected over the output lines of the charger and a positive voltage level over a predetermined threshold value is detected over the terminals of the connected battery, the activation of the switch means connecting the at least one of the output lines of the charger to the terminals of the battery and thereby connecting the charger to the battery."

Claims 2 to 5 are dependent on claim 1.

VIII. The wording of the respondent's auxiliary request is not presented here since already the respondent's main request was found to be allowable.

IX. The arguments of the appellant, as far as they are relevant for this decision, can be summarised as follows:

Claim 1 according to the main request contravened Article 123(2) EPC. The amendments to claim 1 were taken out of their original context of the described embodiment, which constituted an inadmissible intermediate generalisation. In particular the features that the switch was a relay, that the second voltage detection means was a voltage divider and that the relay was provided with a driver circuit were missing in claim 1. There was further no original disclosure for the amendments "configured to detect", "operatively connected", "positive voltage level over a predetermined threshold value" and "only" in claim 1.

Claim 1 was also not new over the disclosure of document E1. In particular, the combination of a measurement of the battery voltage and the voltage over the charger outputs was already known from E1, column 1, lines 30 to 36 and 60 to 63, respectively, in combination with figure 2. In the grounds of appeal, the appellant also argued that the detection of the polarity of the battery voltage might be considered as a difference over the disclosure of document E1.

In addition, the subject-matter of claim 1 was obvious starting from the disclosure of document E1. Claim 1 differed from E1 in that in addition to the voltage at the battery terminals its polarity was measured, and the switch was activated dependent on both conditions only. The objective technical problem was to provide a reverse polarity protection, which was already known from document E2, column 2, lines 58 to 64 or from document E6, column 4, lines 61 to 65. Alternatively,

E1 could also be combined with any of documents E3/E4, E5, E7 or E8, because each of documents E2 to E8 disclosed measuring the polarity of the battery voltage. Combining the conditions of a presence of a battery voltage and a positive polarity of the battery voltage provided no surprising technical effect over the effects of those measurements when taken alone.

- X. The arguments of the respondent, as far as they are relevant for this decision, can be summarised as follows:

The amendments did not contravene Article 123(2) EPC. The expression "operatively" connected was implicitly disclosed. The remaining features were disclosed on page 3 and page 8 of the application as originally filed.

Document E1 disclosed a charger and not a device for a charger to be connected between a charger and a battery to be charged, as claimed in claim 1. Moreover, the switch according to E1 was not operatively connected to the voltage detection means and thus the voltage measurement was not considered for the activation of switch 16 according to E1. Further, the draining of the battery according to E1 after disconnection from the grid was prevented by an impedance, not by a switch. According to document E2, the switch was disposed between a power supply and a charger, not between a charger and a battery. The switch according to document E3/E4 was not related to voltage measurement but to normal operation, i.e. providing a duty cycle. The thyristor switch according to document E5 was not operatively connected to the voltage detection means and was connected in parallel to the battery, so that it was not capable of connecting or disconnecting the

battery. According to document E7, the switch was not on the battery-side of the apparatus and was further not operatively connected to the first voltage detection means. Finally, the switch according to E8 was not capable of disconnecting the battery from the charger since it was connected in parallel to the battery terminals.

Reasons for the Decision

1. Admissibility of the appeal

The appeal was filed in due time and form and sufficiently substantiated. Thus, the appeal is admissible.

2. Amendments - Article 123(2) EPC

Claim 1 according to the main request does not contravene Article 123(2) EPC.

Contrary to the appellant's arguments, the board has arrived at the conclusion that the amendments "configured to detect", "operatively connected", "positive voltage level over a predetermined threshold value" and "only" do not contravene Article 123(2) EPC.

2.1 In the board's view, the expression "configured to detect" in originally filed claim 1 implies a "means

for detecting". The board has no doubts that a "means for detecting" should also be "configured to detect".

- 2.2 With respect to the expression "operatively connected", originally filed claim 1 contains the expression "designed and arranged such that it is capable of activating". The board finds that in order to provide the claimed capability, an operative connection is at least implicitly disclosed. In any case, no new technical information is added by the amendment to "operatively connected".
- 2.3 Besides that, a "positive voltage over a predetermined threshold value" is disclosed on page 8, lines 15 and 16 of the description as originally filed. Although the same paragraph also contains disclosure regarding the preferred embodiment, this cannot be interpreted as restricting the disclosure of the threshold value to two resistance values of a voltage divider. For a person skilled in the art, the concept of a threshold value is directly and immediately apparent from the passage on page 8 cited above and clearly distinct from the specific adjustment of a certain threshold value using a voltage divider. Therefore, the board disagrees with the appellant in that the expression "positive voltage over a predetermined threshold value" constitutes an inadmissible generalisation .
- 2.4 Moreover, the condition "only" added to claim 1 is explicitly disclosed on page 3, line 9, of the description as originally filed.
- 2.5 Therefore, none of the features objected to by the appellant under Article 123(2) EPC extends beyond the content of the application as filed.

3. Novelty - Article 54 EPC

The subject-matter of claim 1 according to the main request is new over the disclosure of document E1.

- 3.1 The board is not convinced by the appellant's argument that document E1 disclosed in column 1, lines 30 to 36 and 60 to 63 all features of granted claim 1 and in addition the AND combination of a detection of a voltage over the output lines of the charger and a voltage of positive polarity over the terminals of the battery as a requirement for the activation of the switch connecting the battery to the charger.

The respondent had indicated several distinguishing features of the subject-matter of claim 1 over the disclosure of document E1, *inter alia* the two features identified by the appellant. In addition, the respondent has during the whole proceedings noted the fact that document E1 does not disclose a device for a charger, as claimed in claim 1, but instead a charger, which was a different device. The appellant has not raised any arguments with respect to this latter difference. Already for this reason, the board is not in a position to agree with the appellant, because no reasons why E1 might disclose a device for a charger have been given.

- 3.2 Also in substance, the board is not convinced that the subject-matter of claim 1 is known from document E1.

Firstly, claim 1 according to the main request is directed to a device for a charger that is to be interconnected between the output lines of a charger and the terminals of a battery to be charged. From the

description, the claims and the drawings of document E1, it is however clear that document E1 discloses a charger. In particular, the passages of E1 referred to by the appellant in column 1 and figure are explicitly directed to a "prior art battery charger". It is neither apparent to the board nor did the appellant raise any argument as to why the battery charger according to E1 should be considered to be a device for a charger according to claim 1.

Secondly, the switch activating means according to E1 operates in a different manner from the one according to claim 1.

As correctly pointed out by the respondent, if the charger according to E1 is disconnected from the power supply, draining of the battery is prevented by a high impedance which is permanently connected to the charger output (see E1, column 1, lines 60 to 63). In contrast, according to claim 1, if there is no voltage detected over the output lines of the charger by the first detection means, the switch connecting the battery to the charger cannot be activated. Therefore, E1 further does not disclose that the switch means is activated only when both a voltage over the output lines and a positive voltage level over a predetermined threshold value is detected over the terminals of the connected battery.

- 3.3 The board thus concludes firstly that the subject-matter of claim 1 differs from the disclosure of E1 in that E1 discloses a charger whereas claim 1 claims a device for a charger that is to be connected between the output lines of a charger and a battery to be charged. Further, because the switch activating means according to E1 is not operatively connected to the

first detection means that detects the voltage over the output lines of the charger, E1 also does not disclose that the switch means is activated only when both a voltage over the output lines and a positive voltage level over a predetermined threshold value is detected over the terminals of the connected battery.

Consequently, the subject-matter of claim 1 according to the main request is new over the disclosure of document E1.

4. Inventive step

The subject-matter of claim 1 according to the main request also involves an inventive step in the sense of Article 56 EPC.

- 4.1 As already found with respect to novelty, document E1 does at least not disclose a device for a charger and that the switch means is activated only when both a voltage over the output lines and a positive voltage level over a predetermined threshold value is detected over the terminals of the connected battery. The appellant has not presented any argument with respect to these distinguishing features in the context of inventive step.

Regarding inventive step, the appellant argued that starting from the disclosure of document E1 the problem to be solved was to provide protection against reverse polarity of the battery. Such a reverse polarity protection was known from any of documents E2 to E8. This approach does not even take the reasoning in the contested decision into account (points 2.3 and 24. of the contested decision), such that it could be

challenged whether the appellant's objection with respect to inventive step is sufficiently substantiated. While the board has doubts regarding substantiation of the appellant's objection of lack of inventive step, no decision is necessary on this issue since the board has arrived at the conclusion the appellant's arguments regarding inventive step are in any case not convincing.

- 4.2 Even if it were established that at least one of documents E2 to E8 disclosed such a reverse polarity detection as argued by the appellant, the appellant's line of arguments includes no indication why the person skilled in the art would have combined document E1 with any of documents E2 to E8.

Moreover, even if it were assumed that the person skilled in the art would have combined the disclosure of document E1 with any one of documents E2 to E8, the resulting subject-matter would not cover all features of claim 1 according to the main request. As pointed out above with respect to novelty, the subject-matter of claim 1 includes further distinguishing features over the disclosure of E1 than just the reverse polarity detection means.

Thus, the mere addition of a reverse polarity detection to the disclosure of document E1 as argued by the appellant does not even result in a device including all features of the subject-matter according to claim 1. Already for this reason, the board has arrived at the conclusion that the appellant's arguments are not convincing.

In this context, a detailed analysis of the passages in documents E2 to E8 as argued by the appellant is not necessary for the board's conclusion.

- 4.3 In addition, the "AND"-combination of the voltage level of the battery voltage and its polarity as the criterion for the switch activation means, which according to the appellant is allegedly rendered obvious, does not correspond to the "AND"-combination actually claimed in claim 1.

According to page 7, second paragraph of the contested decision, *"a switch activating means ... configured such that it is capable of activating the switch means **only when both** a voltage is detected over the output lines of the charger **and** a positive voltage level ... is detected over the terminals of the connected battery"* cannot be found in E1.

Instead of this distinguishing feature, the appellant's arguments merely refer to *"die Erfassung auch der Polarität der Batteriespannung"* (IV.2 of the statement of grounds of appeal), *"Neben der ... bekannten Bedingung der Erfassung eines [sic] Spannung an der zu ladenden Batterie ist also auch die Bedingung der Erfassung der Polarität der Batterie zumindest aus den Dokumenten E2, E3 bzw. E4 und E7 und E8 bekannt."* (IV.7) and define the differences over E1 as *"zusätzlich zur Bedingung der Messung einer Spannung an den Klemmen der Batterie auch die Polarität der Spannung an der Batterie erfasst wird"* (IV.9), i.e. that in addition to the condition of measuring the voltage at the battery terminals the polarity of the battery voltage is measured.

As is immediately apparent from a comparison with the wording of claim 1 or the reasoning of the opposition division, the appellant's line of arguments refers to a feature that is different from what was claimed.

Thus, even if the appellant's arguments were followed by the board, claim 1 according to the main request would not be rendered obvious by the combination of disclosures identified by the appellant.

In fact, the relevant features of claim 1 reads:

"a switch activating means (70) operatively connected to said first and second voltage detection means and designed and configured such that it is capable of activating the switch means **only** when **both** a voltage is detected **over the output lines of the charger** and a **positive voltage level** over a predetermined **threshold value** is detected **over the terminals of the connected battery**" (emphasis added by the board).

Therefore, for the question of whether the subject-matter of claim 1 according to the main request involves an inventive step, it is not decisive whether in addition to the battery voltage level its polarity is measured. The switch activation means according to claim 1 operates on different criteria. The conjunction "both" in claim 1 refers to voltages which are detected over the output lines of the charger and over the terminals of the connected battery, respectively. However, this feature is not covered by the appellant's arguments on inventive step. Although the appellant had argued with respect to this feature in the context of novelty, the appellant's line of argument regarding inventive step is not based on this feature but on the prevention of a reverse polarity, as set out above.

4.4 Consequently, the board is not convinced by the appellant's arguments that the subject-matter of claim 1 is rendered obvious for a person skilled in the art.

5. Conclusion

None of the appellant's objections justifies setting the contested decision aside. The board therefore concludes that the respondent's main request is allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



U. Bultmann

R. Lord

Decision electronically authenticated